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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: M. Krysiak

Serial No.: 09/544,878

Examiner: A. Valenti

Filed: April 7, 2000

Art Unit: 3643

For: SEEDING TREATMENTS

Dated: September 8, 2003

Assistant Commissioner for Patents

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RESPONSE TO OFFICE ACTION

The following is in response to an Office Action mailed June 6, 2003.

The Examiner has rejected claims 6 and 17-21 as being anticipated by German Patent DE 3442317 to Schuart et al.

Regarding claims 17, 19, 21 and 6, the Examiner states that Schuart teaches a method of making seed capsules in a single apparatus by a tumbling/agitation agglomeration operation by preconditioning the seed with a binding agent while tumbling the seed; conditioning the seeds by tumbling the seed in a bed of fine particulate to create layers of matter about the seed (Schuart et al. English translation pages 3, 7, and 8).

Applicant provides the Declaration of Lee Hoffmann. Mr Hoffmann has been employed in the field of agglomeration with Feeco International for 27 years. (Hoffmann Declaration Paragraph 1). Mr Hoffmann has reviewed the application of the present invention and the Schuart patent, DE 3442317. (Hoffmann Declaration Paragraphs 2 and 3). In the world of agglomeration (particle size enlargement), there are four distinctively

16/  
Response  
9/25/03  
Hoffmann

different types of processes: lift and tumble, pressure, liquid and thermal. (Hoffmann Declaration Paragraph 4).

The process of the present invention is classified as lift and tumble, while the process disclosed and taught by Schuart requires liquid agglomeration. This can be more clearly understood when the methods and equipment used to produce such products are explained. (Hoffmann Declaration Paragraph 5). The Lift and Tumble Process is defined as agglomeration by tumbling (growth). Particles are adhered together by use of balling drums, pans, cones, and mixers via impact and tumbling. The resultant shape is a sphere. Agitation agglomeration can use the following equipment: mixers (planetary, cone, ribbon, pintype, drum, counter-current, vertical, paddle, pugmills), Disc pelletizers (pan granulators), drum pelletizers and cone pelletizers. (Hoffmann Declaration Paragraph 6). Liquid agglomeration relates to a process where the liquid spray solidifies into a solid. Liquid agglomeration can use the following equipment: spray dryers, prill towers, spray/fluid bed, granulators, mixers for oil agglomeration. (Hoffmann Declaration Paragraph 8).

The present invention relates to a method of making seed capsules in a single apparatus by a tumbling/agitation agglomeration operation comprising: preconditioning the seed with a binding agent while tumbling the seed. The seeds are conditioned by tumbling the seed in a bed of fine particulate to create layers of matter about the seed. The preconditioning and conditioning steps can be repeated to add additional layers to the seed. (Hoffmann Declaration Paragraph 10).

The coating process of Schuart relates to a liquid coating process where a liquid coating becomes the coat. This is consistent with that of the fluidized bed technology

described by Schuart. Fluidized bed systems convert a bed of solid particles into an expanded, suspended mass that has many properties of liquid per Perry's Chemical Engineer's Handbook, sixth addition. Perry's states the following regarding particle size enlargement, "Growth is associated with the liquification or softening of some portion of the bed material. The motion of the particles, one against the other, in the bed results in spherical pellets". (Hoffmann Declaration Paragraph 11).

Schuart uses the fluidizer to coat the seeds with a mixture of liquids and dusts. Paragraph 8 on page 8 states "Solutions containing binding agents are sprayed sequentially into the fluidized bed." "Active substances in the form of dust, preferably Kaolin, are sprayed continuously into the fluidized bed...parallel to the injection of the liquids." These two components are brought together to form a liquid or emulsion as the first paragraph on page 8 clarifies by explaining "Deposited on the surfaces of the fluidized seeds are first of all the droplets of sprayed liquids and those active substances..." There is no question that these two components are emulsified when Schuart further goes on to explain in the same paragraph that "the solid substance component of the liquid agglomerated onto the seed surfaces..." Schuart, Example 1, illustrates that the water to dust ratio is greater than 3:1, while Example 2 shows a 2.8:1 ratio. (Hoffmann Declaration Paragraph 12).

The way a fluidizer works, the dust must become a component of the liquid before the fluidization occurs or else the dust would be forced out of the chamber due to required air flows. (Hoffmann Declaration Paragraph 13).

It is evident that the fluidized bed method used by Schuart is distinctively different than the lift and tumble method of the present invention. (Hoffmann Declaration Paragraph 14).

The machines and the processes of the present invention and Schuart are different. Schuart is a liquid agglomeration technique, not an agitation and tumbling agglomeration technique. (Hoffmann Declaration Paragraph 15).

For the reasons stated above, claims 17, 19, 21 and 6 are not anticipated nor obvious over Schuart.

Regarding claim 18, the Examiner states that Schuart discloses wrapping more than one nucleus/seed in layers of fine particles (Schuart English translation page 3).

For the reasons stated above claim 18 is not anticipated nor obvious over Schuart.

Regarding claim 20, the Examiner states that Schuart teaches the preconditioning of spraying a precoated material on the seed and subsequently driving off any binding agent used to apply the particulate layers on the seed (Schuart et al. English translation claims).

For the reasons stated above claim 20 is not anticipated nor obvious over Schuart.

Claims 4-16 and 22 are rejected as being unpatentable over German Patent DE 3442317 to Schuart et al.

Regarding claims 4-16, the Examiner states that Schuart teaches an agglomeration process utilizing a tumbler or rotating drum (Schuart et al. English translation page 3), but Schuart is silent on specifically identifying a pan pelletizer, disk pelletizer, balling disk, paddle mixer, horizontal pan, powder blenders, flow-jet mixer, planetary mixer, cone mixer, ribbon mixer, pin type mixer, vertical mixer, pin mixer, cone pelletizer,

fluidized bed. However, these apparatuses are all old and well-known seed coating or mixing machines. The Examiner states that it would have been obvious to modify the teachings of Schuart with any of the machines listed in claims 4-17 since these are merely alternate equivalent agglomeration machines that perform the same intended function of agglomerating particles with a coating and one would select a particular agglomeration machine to satisfy different economic, maintenance, and time parameters and to accommodate different types of fertilizers or nutrient coatings.

The lift and tumble agglomeration process/machine is a different and unique process from the liquid agglomeration process. As stated above different products are produced by using different agglomeration methods. Further the equipment used by liquid agglomeration and lift and tumble are different. The selection of a particular agglomeration machine is based on the type of process and product one wishes to produce, not to satisfy different economic and time parameters or to accommodate different types of fertilizer or nutrient coatings. (Hoffmann Declaration Paragraph 17).

Schuart describes a liquid coating process and not an agglomeration operation comprising agitating and tumbling seeds with fine particulate in an apparatus for agglomeration which wraps the layer of fine particulate around the seed. (Hoffmann Declaration Paragraph 18).

For the reasons stated above, claims 4-16 are not obvious over Schuart.

Regarding claim 22, the Examiner states that Schuart is silent on the preconditioning and conditioning steps are repeated to add additional layers to the seed. However, it would have been obvious to modify the teachings since the modification is

merely duplicating the process to provide a more comprehensive seed coat and does not present a patentably distinct limitation.

For the reasons stated above, claim 22 is not obvious over Schuart.

Applicant believes that the application is now in condition for allowance.

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Signature: 

Name: Maureen P. Herbst  
PMW:mph

Respectfully submitted,



Philip M. Weiss

Reg. No. 34,751

Attorney for Applicant

Weiss & Weiss

310 Old Country Rd., Ste. 305

Garden City, NY 11530

(516) 739-1500